**AIR MOBILITY COMMAND
PASSENGER RESERVATION CENTER
SYSTEM ANALYSIS**

THESIS

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AFIT/GLM/ENS/01M-23

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THESIS

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Robert E. Tuttle

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Abstract

The Department of Defense (DoD) has undergone downsizing in an effort to comply with President Clinton's directive to "reinvent" government, making it more efficient.

The DoD revamped its $3.5 billion annual official business travel program. The core of this project is the Defense Travel System (DTS), an Internet based solution providing personally arranged travel, largely circumventing the base transportation offices.

This thesis looks at the DTS's Air Mobility Command passenger reservation management. This system is comprised of four geographically separated Passenger Reservation Centers located in Scott AFB IL, Japan, Germany and Hawaii. The research objective is to evaluate the current passenger reservation system and operating characteristics of the HQ Air Mobility Command Passenger Reservation Center system and those of the major civilian air carriers to determine if a potential exists for a more efficient AMC PRC structure.

The study concludes that there is a more efficient structure. The disparity in the manpower to workload within the four PRCs and the absence of any manpower standard by which to measure employee productivity makes it is impossible to improve worker productivity. This study recommends closing the PRC in Hawaii.

AIR MOBILITY COMMAND

PASSENGER RESERVATION CENTER

SYSTEM ANALYSIS

I. Introduction

The General Concern

Over time, many governmental programs become what are referred to in current

business literature, as "wrong-sized." This means that the program is not structured in

proportion to its responsibilities, output, or demand for its products or services. In

practice, this usually means the program is too large, necessitating a restructuring

commonly referred to as "downsizing" or the more euphemistic, "right-sizing." Two

common causes of wrong-sizing are technology innovations and changes in mission that

render positions and functions unnecessary, resulting in a bureaucracy bloated relative to

its responsibilities. Two events occurred in the early 1990s that drastically affected many

processes within the Department of Defense and left it ripe for right sizing—the

widespread use of the Internet and the massive draw down of the DoD in the wake of the

end of the Cold War. This opportunity for rightsizing did not go unnoticed at the highest

levels of the Executive Department.

The Reinvention of Government

In 1993, Vice-President Al Gore, at the behest of President Clinton, initiated the

1993 National Performance Review, which called for a complete overhaul of the manner

in which the federal government conducted its business. President Clinton and Vice-

President Gore called it "reinventing government" (3:1). According to VP Gore, the American auto industry was lagging so far behind the Japanese that someone in 1982 would not have believed it possible for it to catch Japan in just 10 years. "But it happened," said Gore (3:1). He goes on to say that someone in 1993 would not have believed it possible for the federal government to be "smaller, customer-driven, worker-friendly, and run like America's best businesses" (3:1). That was Gore's challenge in 1993 for the reinvention of government. The goal was to revamp virtually every facet of the federal government so that it would work better and cost less. This in turn would allow Americans to regain faith in the institution of government.

As one of the largest segments of the federal government, the Department of Defense received its share of attention in the reinvention of government. It received a mandate from on high to change the way that its business was conducted. One of the prominent processes to be reinvented, or reengineered as it is sometimes referred to, was the DoD travel process (4:48).

Department of Defense Travel

The movement of Department of Defense (DoD) personnel on air transportation is an enormous undertaking. In 1993, there were an estimated 8.2 million trips made for official business within DoD costing approximately $3.5 billion, (1:3). To facilitate official DoD travel, Congress set forth the responsibilities of two government organizations, which are contained in Department of Defense Regulation 4515.13-R, Air Transportation Eligibility (2:1-1). The two primary organizations involved with DoD passenger travel are the US Transportation Command (USTRANSCOM) and the US Air

Force's Air Mobility Command (AMC). The USTRANSCOM is entrusted with the responsibility as the "DoD single manager of all transportation" (2:1-1), including air transportation. As such, it "is responsible for the acceptance, movement, and proper accounting of all traffic tendered to it" (2:1-1). The "AMC is responsible for the movement of all traffic from time of acceptance until delivery at the AMC facility nearest the destination" (2:1-1).

The Specific Concern - Passenger Reservation Center (PRC) System Structure

The segment of the DoD travel process that will be the focus of this paper is the AMC passenger reservation center system structure. This overall process is managed by the HQ AMC Passenger Reservation Management Branch (HQ AMC/DONR). DONR has the overall management responsibility for the central Passenger Reservation Center (PRC) as well as the regional PRCs. DONR is a branch of the Air Mobility Command's Aerial Port Operations Division. It is responsible for the following functions (9:2):

- Develop and implement policy and procedural guidance for the passenger reservation system operation;

- Direct and conduct special studies involving various operations within GATES (Global Air Transportation Execution System);

- Evaluate efficiency of passenger movement programs;

- Coordinate development of manpower, equipment, communication, facility, and funding requirements necessary to maintain and operate the PRCs;

- Support regional PRCs regarding customer service, training, equipment, maintenance, manning, and facility requirements.

The regional PRCs have the following responsibilities (9:2):

- Accept reservation transactions from authorized Military Transportation Offices (MTO), Commercial Transportation Offices (CTO), and individuals as indicated in DoD 4500.9-R, Part 1;

- Support all regional Passenger Reservation Users Sites (PRUS) with advice and information on manning, and facility requirements;

- Although primary areas of responsibility are established, PRCs accept reservation requests from any authorized location for any authorized channel.

Several personal interviews with the former Chief of DONR indicated that the streamlining of manpower and numbers of regional PRCs in the early 1990s as a result of the DoD draw down, coupled with the introduction of the latest computerized system for managing passenger reservations, GATES, left the system out of balance and in need of reengineering. However, how far out of balance was impossible to determine.

Neither an Air Force nor a command specific manpower standard exists (23) from which to determine exactly what constitutes a standard by which to measure a PRC worker's, i.e., passenger reservation agent's, productivity. In the absence of such a standard, this study will attempt to determine the PRC system productivity level in terms of station and agent output by analyzing the operating metrics of the PRC system as it currently exists. From this point a productivity baseline can then be established.

Civilian Airline Agent Productivity Metrics

One of the initial goals of this study was to determine the major airline agent productivity and the standards to which they are held. This data was then to be used as a baseline against which the AMC PRC agents could be benchmarked. However, it quickly became apparent that the agent productivity data collected by AMC and the major airlines is not comparable.

The passenger reservation agent data provided by AMC simply allowed the calculation of the numbers of calls made by each agent within a specified period of time. It was from this perspective that the major airlines were first approached. It soon became apparent that this was not the method used by any of the airlines contacted (80% of the major airlines). In fact, simply measuring the numbers of calls is almost irrelevant to their analysis.

What was important to many of airlines was the quality of the calls. To ensure the customers were taken care of in a manner consistent with company policy, all calls at all of the airlines were subject to recording and monitoring. This information was used by management as a feedback and learning tool. Also, to comply with the agreement made between the major airlines and the Department of Transportation (DoT), they have a strict quality assurance program. To avoid the passage of the Passenger Bill of Rights, the major airlines agreed to comply with self-imposed standards. To this end, the company places a high importance of ensuring these standards are met.

Rather than just counting the numbers of calls or transactions, the airlines measure virtually every aspect of the agent-to-customer contact. In fact, one of the primary considerations was the amount of time spent with a customer versus the time not spent with a customer. A performance analyst from one of the major airlines indicated that the time spent off the phone when the agent should have been on the phone, i.e., beyond the time allotted for bathroom breaks, administration, etc, is a key component of what they term the "productivity score." The converse of this component is what his airline termed the "handling time." This is the time spent with a customer. Since each call and caller is a unique situation, they do not have a goal for the agent to attain, e.g. 10

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calls per hour, etc. Rather, they have a range, say 0-1200 seconds, which they provide as a goal. This range varies by work group. The work groups handle different types of calls. For example, one work group may only handle frequent flyers, preferred customers, international calls, or customers with special needs, etc. The handling time range also varies by region of the country. For instance, the company knows that, in general, individuals from the North speak faster than those from the South. Therefore, they allow a wider range for the reservation call center agents in the southern regions.

Another factor measured by this analyst's airline is the level of revenue generated by each agent. The calls are tracked as revenue or non-revenue. The company understands that all calls are different and that they therefore cannot regulate the amount of revenue each agent generates, but nevertheless, it is tracked and used as a feedback tool and included as part of the "productivity score."

The performance analyst summarized this portion of the interview by stating that his airline's system for tracking and measuring the agent's productivity is so complex and sophisticated that he could not begin to explain it in detail. Furthermore, it is proprietary information, not releasable to the public. However, he did say that their system tracks every aspect of every agent's every call down to the second. He was confident that all the airlines used similar systems.

While is was certainly disappointing that the AMC agent productivity could not be compared to that of the major airlines, an important point is made nevertheless. The airlines have put in place a system to measure the output of their reservation agent labor force. This is an absolute necessity since the airlines operate under tight profit margins.

If the AMC PRC system is to strive for improved efficiency, it too will have to establish a method for measuring its agent's productivity

Research Objective

The objective of this research is to evaluate the current passenger reservation system structure and operating characteristics of the HQ Air Mobility Command Passenger Reservation Center system as well as those of the major civilian air carriers to determine if a potential exists for a more effective and efficient AMC PRC structure.

Investigative Question

Does there exist a more efficient structure for the AMC Passenger Reservation Center system to perform passenger reservation management?

Specific Objectives

The specific objectives of this research are to:

1. Compare the workload distribution amongst the AMC's four Passenger Reservation Centers.

2. Determine the current operating metrics of the AMC PRCs with respect to the passenger reservation agent's transaction activity.

3. Evaluate the reservation call center system structure preferability with respect to one centralized center vs. multiple regional centers.

Summary

When organizations and their processes become misaligned with their responsibilities, they frequently undergo the process known as right sizing. In actuality, this generally means downsizing. The federal government has embarked on a journey to

right size the entire federal government, which has been termed by President Clinton and Vice-President Gore as "reinventing government." To this end, the federal government has initiated what is known as "reengineering" every facet of every process within the federal government. As one of the largest organizations in the federal government, the Department of Defense has many opportunities for right sizing. One process identified as being in need of reengineering is the DoD travel process. As a $3.5 billion process, it has received considerable visibility. The management of the DoD passenger reservation system administered by HQ AMC Passenger Reservation Management Branch is a significant segment of the overall DoD travel process. As such, the extent that it requires reinventing, i.e., reengineering, shall be the focus of this study.

The remaining chapters of this work address specific areas of the research. Chapter II provides background information pertaining to the DoD travel process and previous efforts to reengineering it. It also addresses passenger reservation management within the AMC. Chapter III explains the research methodology used to examine the research hypothesis and answer the investigative question and related questions. Chapter IV presents the findings and analysis of the research. Chapter V concludes the research effort by providing recommendations based on the conclusions and findings of the study.

II. Literature Review

Introduction

To accomplish the reinvention of government, Gore turned to America's "best-run companies to be the models, teachers and partners" in this effort (3:3). Companies that led the quality revolution of the past two decades, e.g., General Electric, Harley Davidson, and Motorola, were to be the models upon which the US Government would transform the manner in which it conducted its business.

The Department of Defense Travel Process – 1993

At the time the reinvention of government was initiated, "the DoD travel process was like a bad dream" (3:53). Actually, it is doubtful that anyone or any agency knows the true cost of a process this large. For instance, the National Performance Review literature states the "DoD travel process had over 230 pages of travel regulations and multiple sign-off signatures, the 7 million trips that Defense Department travelers took were paperwork nightmares" (3:54). A General Accounting Office report ups the number of regulations to 1,357 pages. Regardless of the number of pages that govern the process, it is estimated that the "cost of temporary travel in the DoD was $3.5 billion in 1993" (1:2). In fact, the cost of the "federal government's travel system administration was estimated at two and a half to eight times that of private-sector corporations, $37-$123 vs. $15" (5:3), respectively. The private sector reported processing costs at "10 percent of

the direct travel cost" (1:7) while the DoD's processing costs are estimated at 30 percent of the direct travel cost (1:4). This is five times the "6 percent rate that industry considers being an efficient operation" (1:7). Other examples of the need to revamp the current system include the requirement for DoD employees to list each long distance call made while traveling on Government business and to also certify that each call made was for official business (4:49). This regulation was implemented in 1939 when long distance calls were very expensive, but today it is counterproductive and clearly unwarranted. Actually, "certifying the calls often costs more than the calls themselves" (4:49). Another example is the DoD audit process of travel vouchers. The private sector typically audits the voucher prior to payment, whereas the DoD audits the voucher after payment (4:49). To recoup an erroneous payment is difficult and requires many more steps than if the error had been caught first. It is for this reason that private industry audits the travel vouchers prior to payment rather than after. In fact, post payment audits are completed on 100 percent of the DoD travel vouchers but only randomly in the private sector (4:49).

The Department of Defense Travel Process – 1997

In 1997, the DoD laid the groundwork for a travel system that it thought would be a model for corporate travel management and named it the Defense Travel System (DTS) (6:6). The 230 pages of regulations had been reduced to about 17 pages of plain English (3:53). Incidentally, the writing of government regulations that the common citizen could understand, i.e., written in plain English, was also a goal of the reinvention of government. The vision of the DoD travel system included a completely paperless

process and was expected to save more than $400 million annually, which was about two-thirds of the cost at that time (3:53).

An interesting aspect of this project is that it went from trying to emulate corporate America to setting the example. It did not accomplish this on its own though. It teamed up with some of America's best firms including AT&T, American Express, EDS Corp., IBM, Carlson Wagonlit Travel and many others (3:53). This allowed them to create strategic alliances resulting in shared technologies with the DoD.

Travel processing, in both the DoD and private industry, generally includes the following elements (1:2):

- Authorizing the funding and appropriate means of travel and issuing orders;

- Arranging transportation and accommodations as well as developing itineraries;

- Making travel expenditures, purchasing tickets, and collecting receipts;

- Preparing and processing vouchers and;

- Reconciling based on receipts and other supporting documents; accounts, auditing vouchers, making payments, and generating management reports.

One of the major problems with DoD is that it had not fully identified its agency wide travel processes and costs. DoD's travel operations were decentralized and included numerous steps that vary not only by location but also from agency to agency. In contrast to private industry, DoD had a more decentralized processing system (1:4). In fact, the DoD had over "700 voucher processing centers" (1:5) whereas companies identified as having the industry best practices had only one (1:9).

Industry Best Practices

Although the current system is an improvement over its predecessor, advances in technology and customer expectations continuously raise the bar. Once DoD travel managers realized the extent to which an improved travel process could reduce the enormous travel expenditures, there was no turning back. How could DoD improve its travel system still further? For the answer to that question, the DoD looked to private industry. They decided to benchmark the industry best practices in efficient travel management programs. The GAO conducted an initial survey of 20 of the best travel programs in industry (1:7). Of these 20 companies, two were singled out for further study, General Electric and Allied Signal. They had reduced their processing costs well below the six percent standard considered efficient. Also, General Electric estimated their processing costs were only 3.2 percent of direct travel costs and those of Allied Signal were an even more impressive less than one percent. The analysis of these two industry leaders revealed several practices common to both firms and subsequently incorporated into the DTS.

Some of the following best industry practices have been adopted by the DoD and are the nucleus of the estimated $400 million annual savings. One practice was to mandate the use of a corporate charge card for travel expenses and cash advances. The benefits to this practice are reduced overall levels of cash advances and outstanding balances. DoD has transformed its charge card program from one of convenience and voluntary use, in the case of the Diner's Club card in the mid-1980s, to the mandatory use of the current Federal Government Travel Card, a Visa card administered by NationsBank (8:3). Another practice was the consolidation of the travel processing

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centers. Again, Allied had 23, General Electric had up to 40, and the DoD has over 700.

Both General Electric and Allied Signal now have only one, and the DoD will have

reduced its number to 18 regional offices (Figure 1) (7).
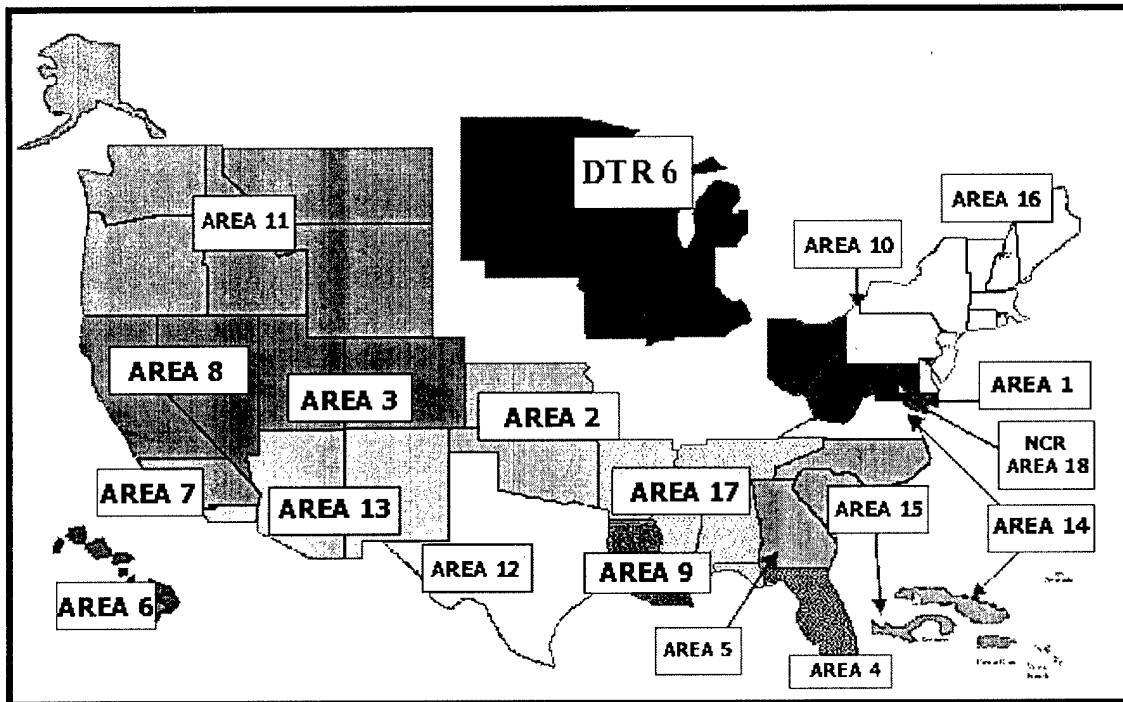
Figure 1. DTS Regions (7)

Defense Travel System

"The reengineered travel system", known as the Defense Travel System, "was

envisioned as a seamless, paperless, automated system to be provided by a Contractor

under a commercial sales agreement that would reduce the cost of management and

provide better service to travelers" (18). It was designed with three primary objectives in

mind: "Customer Service, Mission Focus, and Efficiency" (10:7). The *customer service*

objective is comprised of three parts: quick authorizations and approvals, easy to create

travel records, and fast, electronic reimbursements. The quick authorizations and approval is a result of the shift in thinking that empowers the approval official (AO). The traveler will simply arrange a trip on his or her personal computer using a personalized digital signature disk. Once the itinerary is arranged, it is electronically forwarded to the AO who has the authority to approve the trip. All travel arrangements, from access to commercial reservation systems to flights, hotels, and rental cars, will be made available to the traveler. The traveler can select the most appropriate, within DoD policy. Better *mission focus* for commanders is accomplished when the system automatically flags requests that are not within current policy. For instance, if a traveler selects a flight not on the GSA city-pairs contract or selects a hotel not within prescribed per diem rates, this information is electronically routed to the AO for a decision. This also increases mission focus by allowing more timely visibility over travel decisions to commanders. Also, once the itinerary is digitally approved by the AO, the DTS will interface with the organization's accounting system to provide it with a cost estimate. The combination of better customer service and improved mission focus fulfils the final objective of *efficiency*.

The Defense Travel System is currently in the testing phase. It has experienced some production delays, but this is understandable considering the scope of the project. The first region to have full DTS capability will be the DTR-6 (Figure 1), which is 11 mid-western states. Full implementation of the DTS will take approximately 33 months, as over 3 million DoD users will require training. An interim program known as the DTS-Limited came on line in April 2000. As the name implies, it will have limited capabilities as seen in Figure 2 (11).
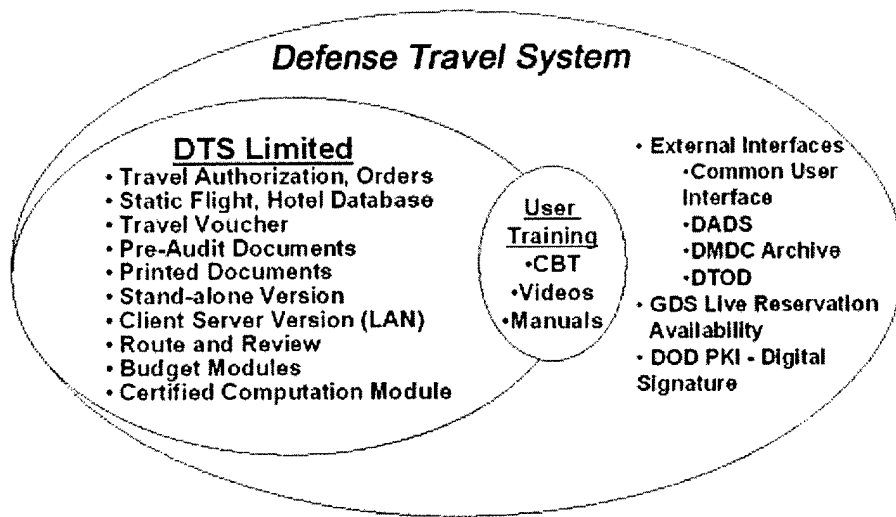
Figure 2. DTS Limited vs. DTS (11)

Although it is an interim capability designed to bridge the gap until full DTS

implementation, it has the look and feel of the fully operational and interfaced system. It

is based on a commercial off-the-shelf (COTS) product, but it has been modified to give

it the DTS look albeit without the external interfaces, which is actually the most

beneficial aspect of the full DTS. Nevertheless, the DTS program implementation is

proceeding.

Passenger Reservation Management

The Air Mobility Command operates a network of Passenger Reservation Centers

(PRC). Their goal is to "provide peacetime cost-effective international passenger airlift

meeting the requirements of DoD customers while supporting the wartime mobilization

of the Civil Reserve Air Fleet (CRAF)" (5:2). As late as the early 1990s, the Military

Airlift Command, AMC's predecessor operated a worldwide network of eight Passenger

Reservation Centers (21:1). At its nucleus was a central PRC located at Scott AFB,

Illinois and seven regional PRCs located at Elmendorf AFB, Alaska; Rhein-Main AB, Germany; Hickam AFB, Hawaii; Yokota AB, Japan; Osan AB, Korea; Kadena AB, Japan; and Clark AB, Republic of the Philippines (11:1). At that time, the DoD had not begun its draw down in earnest and was still operating a system designed during the Cold War. In fact, the military was still at its pre-Gulf War personnel strength with substantially greater numbers of personnel stationed overseas and changing stations with greater frequency. The central PRC at Scott AFB had a staff of "well over 50 persons" (reservationists) (10:1) staffing a 24-hour operation. Each of the regional PRCs had similarly large staffs. The reservationists made passenger reservations primarily via telephone calls from the installation traffic offices on individual bases "to provide a prompt, efficient reservation service" (11:1). However, other communication modes were used to "include the Automatic Digital Network (AUTODIN), message, telex, and the Defense Data Network (DDN)" (11:1). This was a labor-intensive process evidenced by the large staffs at each PRC. The amount of labor may seem excessive by today's standards. However, if one keeps in mind that this is still the pre-Internet era and the proliferation of the personal computer had yet to begin, the passenger reservation system that was originally designed in 1972 and known as the Passenger Reservation and Manifesting System (PRAMS) was state-of-the-art at the time of its inception.

PRAMS was the heart and soul of the PRC system. "As stated in the Functional Description (FD) of 1 October 1972, the objective of the Passenger Reservation and Manifesting System (PRAMS) is to 'aid the aircraft users by consolidating all their requirements into one system so that economical and timely response can be made to their demands and so that the costs associated with new requirements can be reduced"

(21:14). The expected improvements from PRAMS sound very familiar, with the same goals as nearly all of today's systems innovations. They were increased service, increased efficiency, improved data access, and improved reports. The objective for increased service was to improve from 24 hours under PRAMS predecessor to "frequent responses to reservation requests during the processing day" and "telephone requests with critical travel restraints will be answered in one to five minutes" (21:14). Although these goals may seem antiquated by today's standards and instantaneous response in real time, they were envisioned as progress at the time they were stated. The quest for increased service is one that is never complete. Improvements should be aggressively and relentlessly pursued. The advent of the revolutionary DTS has reset the standard from which the improvement process will be viewed in the future.

Anomalies of the Passenger Reservation Center System

There are two possibly significant anomalies with the PRC system that may have an impact on future decisions regarding any possible restructuring of the system. The first involves the status of the PRC located at Rhein-Main AB, Germany. Although the air base located at Rhein-Main has historically been the hub of European airlift operations, this is projected to change. The base is scheduled to close in 2005 causing a transfer of operations to Ramstein AB, Germany. Presently, the PRC is scheduled to move to Ramstein AB at that time. The second anomaly concerns the local national employees of the PRC located at Yokoto AB, Japan. Virtually the entire salaries (99%) of the local national employees at that PRC are paid for by the Japanese government at

virtually no cost to the US Government in accordance with the Japanese National Master Labor Contract (MLC) (22).

Commercial Reservation System for the Military Airlift Command

In his report prepared at the Air Command and Staff College in 1987, "Cost Savings Potential of a Commercial Reservation System for the Military Airlift Command," Major Russell Whipp identified and presented problems with passenger reservation management and operational structure alternatives to the then existing passenger reservation management system, some of which still hinder the AMC from optimizing efficiency within the passenger reservation system. Whipp's study is largely outdated, however, some issues deserve a brief discussion.

Providing visibility of what was then termed Category B flights, but which are now referred to as Patriot Express flights, is one of the passenger reservation system's perennial problems. Patriot Express flights are those that transport passengers in planeload lots on other than a carrier's regularly scheduled commercial flights (11:ix). The reason this is problematic is that if the passengers do not know about the flights, they cannot make reservations on them. This leads to the next problem, which is under utilization of the Patriot Express. Under the Patriot Express system of purchasing seats in full planeload lots, when passengers fly to the same destinations as the Patriot Express, but on other than Patriot Express aircraft leaving Patriot Express seats unfilled, the AMC is, in effect, paying twice for the same transportation.

Whipp suggested two alternatives to improving the operational capabilities of the reservation system. The first was for the Military Airlift Command (MAC), now AMC,

to improve PRAMS. Currently, the function of PRAMS has "migrated to GATES on 30 November 1997," (9:1). GATES is the Global Air Transportation Execution System, which will be discussed more fully in the next section. However, the problem of the Patriot Express seat inventory visibility has not been fully solved by GATES. PRAMS has been replaced by GATES, and Cat B has been replace by Patriot Express. The names have changed, but the problem remains. The second alternative was for MAC "to analyze commercial system operations to determine if there may be some application to the military reservation system" (11:3). Whipp's intention was to analyze the viability of adopting one of several systems: 1) access to a commercial airlines database, e.g. Delta Airlines; 2) use of a travel agency to book reservations, e.g. the Schedule Airlines Traffic Office (SATO); or 3) obtaining a partition into the Shared Airline Reservation System (SHARES). These options as Whipp envisioned them have also been rendered obsolete by the implementation of the DTS. However, the analysis of the commercial systems operations may be worth pursuing in the reengineering effort of the AMC passenger reservation system.

Global Air Transportation Executable System (GATES)

The implementation of GATES within the DTS is the technological innovation generically referred to in Chapter 1 as one of the reasons necessitating the reengineering of the passenger reservation system.

The purpose of the GATES is to replace the legacy systems that support the AMC mission within the Defense Transportation System of rapid, global mobility and sustainment for America's armed forces with a modernized, fully integrated, and significantly enhance global transportation system. GATES supports the DTS by providing AMC, the DoD, and commercial partners with the automatic functionality to process and track cargo and passenger information, support management of resources, provide logistical support information, generate standard reports, support scheduling and forecasting, and provide message routing and delivery service for virtually all airlift data. (12:1)

When GATES becomes fully operational it will not only fulfill Whipp's vision of an improved passenger reservation system, but also will perform numerous additional functions. When it becomes fully operational, it will provide not only the military and commercial transportation offices with an improved reservation booking mechanism, but it will allow virtually every member of the DoD the ability to make there own travel arrangements.

Summary

In summary, it is clear that key DoD processes must keep pace with developments in technology in order to maintain peek efficiency and effectiveness. Although the current DoD travel process was state-of-the-art 30 years ago, and was an improvement over the previous process for managing passenger movement, it has become obsolete with the advent of the more inexpensive and efficient Internet based solutions. By taking a hard look at industry's travel process reengineering effort, much valuable insight was gained at a fraction of the cost and time of a trial-and-error effort. Not only was DoD able to achieve parity with the industry benchmark, it was able to reestablish a new benchmark with its comprehensive system, the Defense Travel System. It is clear that streamlining is key to improved efficiency. AMC has streamlined its passenger

reservation system from eight centers down to four. It has also consolidated numerous

database management and command and control systems into one, i.e., GATES. Options

for further streamlining will be explored in the remainder of this study.

III. Methodology

Overview

This chapter describes the methodology to be used in the evaluation of the study's research objective, which is to compare the current structure and operating characteristics of the HQ Air Mobility Command Passenger Reservation Center system with successful civilian air carriers to determine if a potential for a more effective and efficient structure exists.

The evaluation of the PRC's efficacy will be guided by the following broad investigative question:

> Does there exist a potential for a more efficient structure for the Passenger Reservation Center system to perform passenger reservation management?

To thoroughly answer this question, additional specific objectives will need to be addressed.

1. Compare the workload distribution amongst AMC's four Passenger Reservation Centers.

2. Determine the current operating metrics of AMC's four PRCs with respect to the passenger reservation agents' transaction activity.

3. Evaluate the more preferable of two reservation call center system structures: one centralized center vs. multiple regional centers.

Using the spirit and intent of the reinvention of government as a guide dictates that the passenger reservation management function must align its resources with its responsibilities in the most streamlined manner possible. As mentioned previously, this has recently meant a downsizing of most organizations, but not necessarily. A truly

successful organization must retain a dynamic capability to expand its operation when necessary.

The formulation of the Defense Travel System (DTS) used a benchmarking philosophy where the best practices of private industry were used as a baseline from which to measure or gauge the efficacy of the government systems. After determining which private sector firms had designed and implemented the best systems for managing employee travel, the designers of the DTS had a better idea as to what constituted a baseline metric for an efficient system (5). As stated in Chapter 2, the implementation of only some of industry's best practices promise to reap great dividends for the DTS.

Benchmarking

The methodology will be characterized, in part, by a benchmarking comparison of several civilian passenger air carriers' Reservation Call Centers (RCC) to AMC's PRCs. Benchmarking is defined in The American Heritage College Dictionary as "a standard by which something can be measured or judged" (14:127). Altany states that,

> Benchmarking is the formal process of measuring and comparing a company's operations, products, and services against those of top performers both within and outside that company's primary industry. (15:52)

Benchmarking as defined by Camp is "the continuous process of measuring products, services, and practices against the company's toughest competitors or those companies renowned as industry leaders" (16:3). Benchmarking as used in this study is defined as searching for the best methods of structuring a passenger reservation management system within the commercial industry and comparing them to current Air

Force practices. Determining which companies against whom to benchmark is discussed at length in a later section.

AMC PRC Station Workload Distribution

How does the workload distribution at the PRCs compare with assigned manpower?

A comparison across the different AMC PRCs of the number of transactions vis-à-vis the number of assigned reservation agents will be conducted using the sample data. The sample data will be comprised of reservation agent transactions from each of the four AMC PRCs during the months of January to June in the years 1998 and 1999.

AMC PRC Passenger Reservation Agent Transaction Activity Metrics

What AMC PRC passenger reservation agent transaction activity metrics will be used?

A passenger reservation agent is an employee with the PRC that actually conducts interaction and books transactions with customers via the telephone. This excludes administrative, supervisory, and management overhead personnel that either do not make bookings or do so only sporadically. Passenger reservation agent activity is tracked by AMC in several ways. Each of the four Passenger Reservation Centers tracks its activity on a monthly basis. Each agent's activity is tracked individually allowing for a "per agent" summary of activity. The total transactions are broken down by type of transaction as listed below:

1. Booked

2. Cancelled

3. Hold

4. Nonavailability

5. Pet Booked

6. Pet Cancelled

7. Pet Hold

8. Update Passenger

However, this study will focus on the total number of transactions rather than a break down by type.

Next, the activity is broken down by hour-of-the-day, in which the transaction occurred, standardized to Central Standard Time. This allows visibility over peak workload times, the importance of which will be apparent when formulating options for the PRC's possible restructuring.

Then, the activity is compiled across the hour-of-the-day by transaction type across an entire month to provide a "total by type". Finally, the total-by-type is summarized to give the total transactions per agent on a monthly basis, which also provides the station's total workload on a monthly basis. See the example in the Table 1.

Table 1. Example of how transactions are tracked (HQ AMC/DONR)

BLV (Scott AFB) June 1999 Transaction Activity													
Hour (CST)		12	13	14	15	16	17	18	19	20	21	22	TOTAL
Agent	Type	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr	Cntr
dkstof00	Booked		10	48	38	24	18	19	29	23	4		213
dkstof00	Cancelled		2	8	6	2	6	6	8	3	1		42
dkstof00	Hold				1	1	2						4
dkstof00	Nonavailability			4		3	7	4		5	1		24
dkstof00	Pet Booked		2	3	3	1							9
dkstof00	Pet Cancelled				2				1				3
dkstof00	Pet Hold				4								4
dkstof00	Update Passenger		4	10	7	2		1	1				25
dkstof00	TOTAL	0	18	73	61	33	33	30	39	31	6	0	324

Civilian Airline Reservation Call Center Operating Characteristics

How will the reservation call center operating characteristics, within civilian air carriers similar to the PRC, be collected and compared to the AMC PRC?

Data will be solicited from all the major civilian passenger airlines to be used as a benchmark. However, it is expected that only a fraction of them will agree to participate in the study. The data to be collected will be from personal interviews of airline employees responsible, knowledgeable, and authorized to release information about their firm's passenger reservation operations. The interview will ask questions in two areas:

1. Reservation Call Center Information

2. Internet Customer Interface Option

The first area will attempt to determine information about the airlines call center structure by inquiring about the number of call centers operated, if a hierarchy exists amongst multiple centers, the hours of operation, the heuristic used to locate the centers, the computerized reservation system used, and the origin of the calls.

The second area of concern in the airline interviews is the Internet customer interface option. This section will attempt to determine to what extent the airlines use the Internet as a reservation management tool. In addition, it will ask if the airlines strategic plans call for an increase in the use of the Internet. If the Internet is used by an airline, the extent that it is backed up by a staff of reservation sales agents will be of interest. The personal interview will be guided by the questions contained in Appendix B.

Establishing Civilian Passenger Air Carrier Counterparts to AMC

Determining civilian air carriers from which to benchmark the AMC PRC operation against will be a necessary component for the research approach. It is somewhat more complicated than if it were simply a comparison of two competing civilian passenger air carriers, which in and of itself is not as straightforward as it may seem on the surface.

Categorizing for-hire air carriers into specific types is difficult because carriers provide many types of service. Also, several methods are used to rank airlines within the civilian airline industry including total number of passengers, revenue passenger miles, freight ton-miles, total operating revenues, and profitability. The choice between the many options depends on the point to be derived from the comparison. However, "a classification frequently used by U.S carriers is one based on annual operating revenues" (13:172). The categories used to classify air carriers, according to Coyle, in terms of annual operating revenue, are shown in Table 2.

Table 2. Air Carrier Classification Hierarchy. (13:172)

Category of Carrier	Annual Operating Revenues
Major air carrier	More than $1 billion
National air carrier	$75 million to $1 billion
Regional air carrier	Less than $75 million

Using the above classification heuristic to compare the AMC airlift program to civilian air carriers is hampered somewhat by the classic problem of comparing non-profit, government entities to profit generating, private sector firms. It is a bit like the

proverbial comparison of apples to oranges. However, the purpose of the comparison in this study is not to find an exact replica of AMC in the private sector, but merely to place AMC in a relatively similar category and gain an appreciation of the magnitude of AMC's operation. In FY98, AMC's annual airlift revenue was nearly $2.7 billion (17:14), which easily places AMC in the Major Air Carrier category.

A further note of interest in the categorization of airlines for this study is another category known as the charter carrier (13:173). Generally, the charters use large airplanes to transport either passengers or freight. According to Coyle, the supplemental carrier has no time schedule or designated route. The carrier charters the entire aircraft to transport a group of people between specified origins and destinations. Many travel tour groups use charter carriers, as does the Department of Defense. In fact, the primary function of the PRC is the booking of reservations on DoD chartered flights. These flights are scheduled on the system known as the Patriot Express. While the DoD, through AMC, contracts with civilian air carriers to provide air transportation, primarily via the Patriot Express, the Patriot Express is operated as though it were a scheduled, for-hire airline. Consequently, the AMC Patriot Express will be considered to be a scheduled air carrier for the purpose of the air carrier comparison in this study. Additionally, AMC provides air transportation on scheduled military aircraft known as channel missions. These military aircraft fly scheduled missions over regular routes upon which DoD travelers can reserve seats through the PRC.

Another difficulty in deciding which airlines against which to benchmark AMC is that AMC does not cleanly fall into any one category in every classification method. For instance, taking the most common categorization criteria, total annual operating revenue,

AMC can be placed in the major airline grouping. If the number of passengers is used as the deciding criteria, then AMC is relegated to the lower end of the regional airline grouping. However, the regional category is not appropriate as the AMC operation is truly worldwide in scope, whereas the regionals are primarily confined to small regions of the United States. In actually, AMC is a hybrid "airline." It contains characteristics of two of the three airline groupings based on total annual operating revenue and number of passengers, major and regional airlines, respectively. AMC is similar to a regional airline by virtue of the small number of passengers carried. Ironically though, AMC is forbidden by law from competing with civilian industry and is therefore, forbidden from establishing scheduled flights within the continental United States (CONUS). However, the worldwide operation of its routes places and complexity of its network places it in the same league as the major airlines.

AMC, operating as the agent for the DoD, will be benchmarked against the major airlines using the most common classification method, i.e., total annual operating revenue. The total annual operating revenue and budget of the major airlines and AMC, respectively, combined with the worldwide operations of both, makes them comparable. If one considers the available resources that can be devoted to improving operations, then annual operating revenue and operating budget are common denominators. The similarly large pool of resources available to AMC and the major airlines appears to place them both in the same category. Using passengers carried, and thus using regional airlines as the basis for comparison was ruled out, as the regional airlines are largely domestic as opposed to AMC, which is truly global in nature. Consequently, the closest

approximation and the most valuable information will be available from benchmarking

AMC against the major airlines. The major U.S. civilian air carriers, as reporting by the

Air Transport World for 1999 (19), as listed in Table 3.

Table 3. Major US Airlines (Air Transport World, 1999)

Airline	Total Annual Operating Revenue (billion $)	Rank ($)	Total Passengers (000)	Rank (# PAX)	Category
United Airlines	18.03	1	86,580	2	US Major
American Airlines	17.73	2	81,507	3	US Major
Delta	15.05	3	105,534	1	US Major
Northwest	10.28	4	56,114	5	US Major
Continental	8.64	5	44,012	7	US Major
US Airways	8.46	6	55,812	6	US Major
Southwest	4.74	7	57,500	4	US Major
TWA	3.31	8	25,854	8	US Major
America West	2.15	9	18,704	9	US Major
Alaska Airlines	1.68	10	13,620	10	US Major

Data Collection

The necessary data will be collected from two sources. The first set of data will

be a sample of reservation call activity from the base transportation offices to the four

PRCs over two six-month periods; from January to July in 1998 and 1999. This data was

collected from PRAMS at Scott AFB. It contains compilations of actual transactions by

each passenger reservation agent as well as station totals. An example of this data set is

contained in Table 1.

The data required to benchmark the PRC against the civilian airline industry will

be collected from interviews of company personnel using the list of questions

contained in Appendix B. These questions used the investigation question as a foundation upon which to build the interview. The interviews will be conducted either telephonically or via e-mail depending on the preferences of the airline representatives. All interviews will be standardized and recorded, when permitted, to eliminate potential omission or misinterpretation of pertinent data.

Assumptions and Limitations

It is assumed in this study that leading civilian airlines operating under the pressure of achieving profitability are also operating in an efficient manner. While there certainly are limitations inherent in a comparison of similar yet dissimilar entities, i.e., the non-profit, governmental AMC to for-profit civilian airlines, it is felt that the comparison is narrow enough in scope to permit drawing useful conclusions.

Summary

The research methodology is designed to provide sufficient evidence to accomplish the research objective of determining if a potential for a more effective and efficient structure exists for the HQ Air Mobility Command Passenger Reservations Center system.

IV. Findings and Analysis

Overview

This chapter profiles the research findings and an analysis of each of the specific objective research questions. To reiterate, the research questions are explored in an effort to shed light on the broad investigative question of determining if a more efficient structure is possible for the Passenger Reservation Centers to perform passenger reservation management. The chapter begins with an analysis of the AMC PRC system's recent operating metrics. This entails a look at the workload distribution amongst AMC's four PRCs. It then examines the recent operating metrics of the PRCs with respect to passenger reservation agent transaction metrics. Finally, reservation call center system structure regarding the efficacy of one centralized center vs. multiple regional centers is presented. The last chapter of the study, Chapter 5, will present overall conclusions and recommendations for areas of further research.

Research Objective One - PRC Workload Distribution Comparison

Compare the workload distribution amongst AMC's four Passenger Reservation Centers

This area began with a compilation of individual PRC reservation agent transactions over two six-month time periods. Both periods were from January to June, in 1998 and 1999. As a result of the passenger reservation management system migration from PRAMS to GATES, the 1999 data for the Yokoto AB, Japan PRC was corrupt negating the year-to-year comparison for this center and diminishing the overall, i.e., total

transactions for the entire system, year-to-year comparison. However, this limitation does not seriously detract from the objective.

The data is comprised of the eight transaction types as listed in Chapter 3, collected on a monthly basis, and segmented into hourly increments. A small sample of this data matrix was contained in Table 1 in the previous chapter. The transactions for each agent were then aggregated into monthly totals for each PRC. The aggregate data was entered into an Excel spreadsheet for later use in building graphical representations. The four AMC PRCs will be frequently represented by abbreviations for the remainder of this chapter as shown in Table 4.

Table 4. PRC Abbreviations (HO AMC)

Station Code	Passenger Reservation Center
BLV	Scott AFB, Illinois (Central PRC)
FRF	Rhein-Main AB, Germany
HIK	Hickam AFB, Hawaii
OKO	Yokoto AB, Japan

Next, the manpower used to accomplish the transactions was collected from the individual monthly data collection spreadsheets maintained for each PRC. Only the manpower actually used to accomplish transactions is used. Administrative, supervisory, and overhead management personnel are excluded from this comparison. This aggregate data was also entered into the same Excel spreadsheet for comparison purposes. The chart containing the comparison of manning to workload in 1998 is shown in Figure 3.

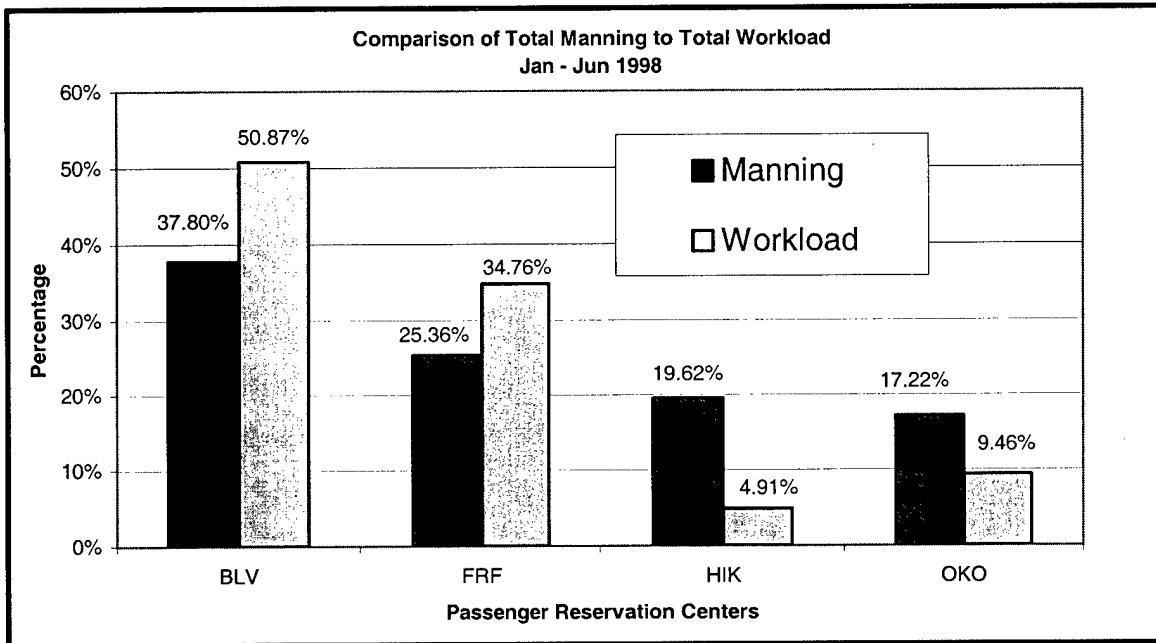**Comparison of Total Manning to Total Workload**
Jan - Jun 1998

Figure 3. Comparison of Manning to Workload Totals, Jan-Jun 1998 (HQ AMC/DONR)

It is very apparent that the manpower and workload, as percentages of the total, are unevenly distributed across the entire PRC system. BLV and FRF are both undermanned considerably. BLV and FRF are, in effect, being taken advantage of by the two PRCs at HIK and OKO, which are grossly over manned. In fact, during this period, HIK was manned at nearly four times the amount of workload it carried, while OKO was manned at close to twice its workload. The largest PRC, BLV, accomplished over ten times the transactions as did the second smallest, HIK, at 55,446 vs. 5,347, respectively, but with only 18 percent more manpower. A similar inequity exists between the largest and smallest PRCs, BLV and OKO. BLV accomplished five times the transactions of OKO, again with a manning level disproportionate to its workload.

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Clearly, the workload distribution comparison between the four AMC passenger reservation centers during the sample period reveals a disparity between the amount of work accomplished and the amount of workers assigned to accomplish it.

In the next analysis, the sample data from January - June 1998, was aggregated to represent the workload over a 24-hour spectrum (Figure 4).

**PRC System 24-Hour Transaction Workload Distribution
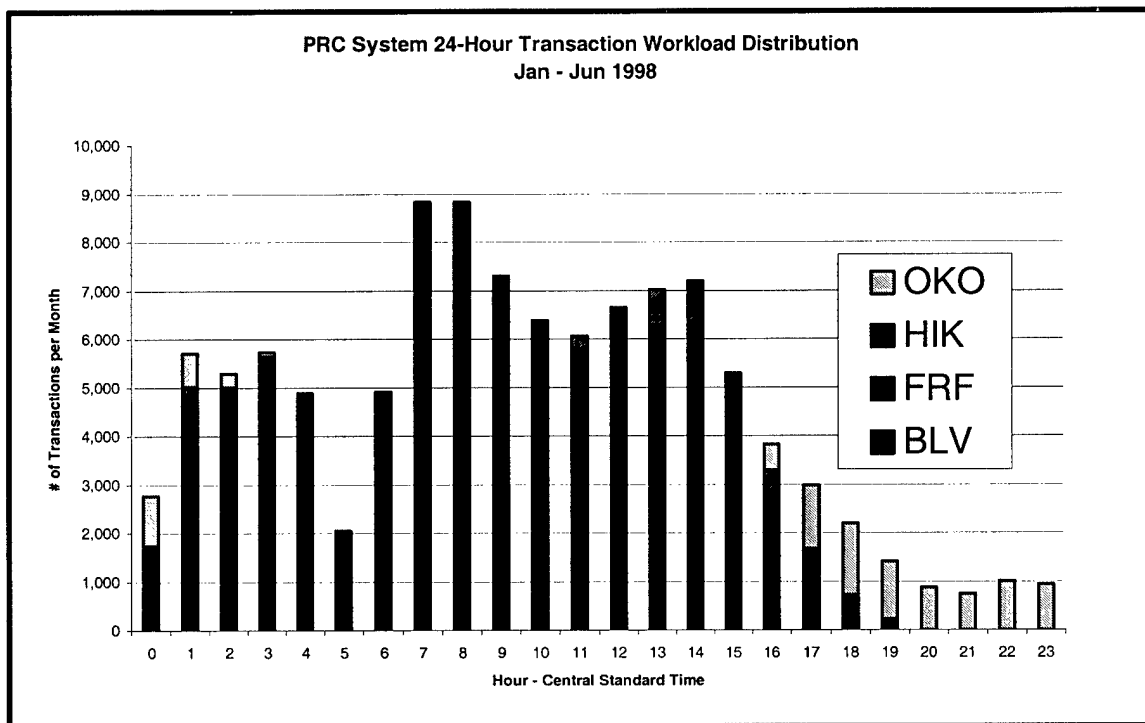Jan - Jun 1998**

Figure 4. PRC System 24-Hour Transaction Workload Distribution (HQ AMC/DONR)

The benefit to viewing the data in this manner is that it is possible to determine the PRC system-wide workload at various times of the day. The PRC system is operated at the four locations, BLV, FRF, HIK, and OKO on a 9-hour workday, 0700-1600 local time, with the exception of BLV, which operates until 1700. This provides a 24-hour worldwide capability as any PRC can handle calls from any geographic region, although

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this happens infrequently. It also provides backup capability in the event that a PRC is temporarily non-operational.

When viewed from this perspective, it is apparent that the lion's share of the work, 56.51%, was accomplished at the BLV PRC during the hours of 0700-1700 Central Standard Time (CST). The FRF transactions that occurred from the hours of 0001 to 0700 (CST), when added to BLV's workload, account for an even greater share of the work, 93.42 %. This leaves a small percentage, 6.38%, of the total workload being done in the hours from 1700- 2359 CST, which is primarily from the OKO PRC, but with some HIK transactions included. This is represented in Figure 5.
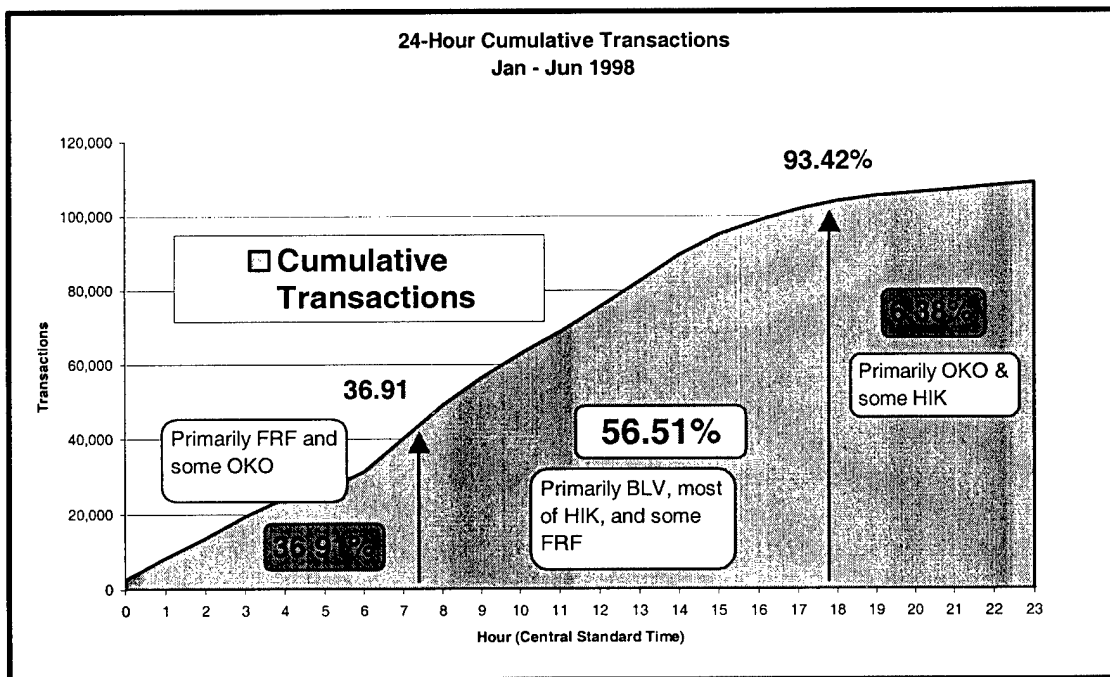
Figure 5. 24-Hour Cumulative Transactions, Jan-Jun 1998 (HQ AMC/DONR)

A partial comparison of the two sample periods from one year to the next, 1998 to

1999, reveals that the total transaction activity fell. This drop in call activity also resulted

in a relative drop in productivity as will be examined in more depth in the following

research objective. While a drop from one year to the next may not ordinarily signify a

trend, it appears that in this case it does. The reduced call activity to the PRCs directly

follows the phased implementation of PRAMS' replacement, the Global Air

Transportation Execution System (GATES). As discussed in Chapter 2, GATES

provides the base transportation offices with the capability to make reservations for the

PRC's prime source of business, the Patriot Express, via client-server software versus

having to place telephone calls to the PRC. It should be noted that the drop in PRC

activity is not the result of a reduction in Patriot Express ridership, as it has remained

relatively consistent and actually increased somewhat from 1999 to 2000 as shown in
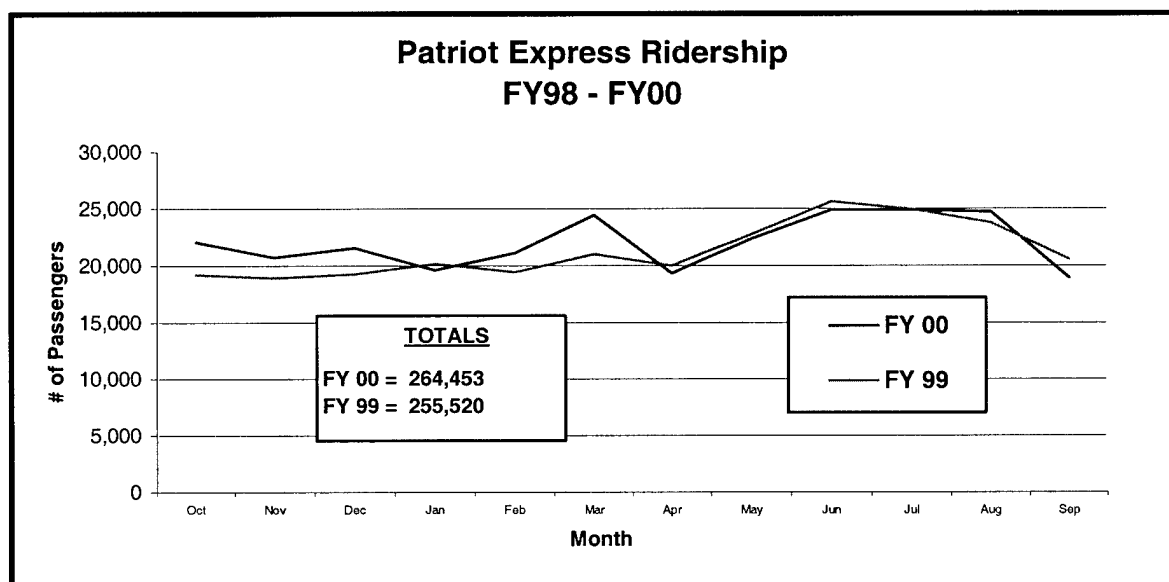
Figure 6.

Figure 6. Patriot Express Ridership (HQ AMC/DONR)

As the implementation schedule of GATES proceeds, this problem will be exacerbated. With the stand-up of GATES at more and more base transportation offices the need for telephonic reservations to the PRC will be reduced. Ultimately, GATES will provide the rank-and-file DoD members the ability to book their own reservations via the Internet taking away an even larger share of the PRC's business.

Research Objective Two - PRC Reservation Agent Operating Metrics

Compare the reservation agent transaction operating metrics amongst AMC's PRCs.

The previous research objective provided a macro look at the operations of AMCs four PRCs. This objective provided a microanalysis by delving into the transaction activity of the reservation agents. This was accomplished for each PRC using sample data from the same two six-month periods of January to June of 1998 and 1999, again with the exception of the 1999 OKO data.

This analysis began by converting the individual agent data into a monthly aggregate. The monthly aggregate was then converted to a monthly average. From this figure, an average number of transactions per reservation agent was calculated per day, and per hour. After having seen the results from the first research objective, the results of this section are not surprising, as the wide variation in PRC productivity is reflected in the individual agent productivity. Obviously, they closely mirror the results from the first research objective having been drawn from the same data. What is of interest is the boiling down of the large numbers of transactions into a manageable figure that is easily and intuitively grasped. There is, once again, a great disparity in the average number of transactions per agent between the largest/busiest PRC and the smallest/slowest. On

average, the agents at BLV are accomplishing about 2.92 transactions per hour or put

another way, one every twenty minutes, while the agents at HIK complete less than one

per hour. This does not necessarily imply a lack of efficiency on the part of the

individual agents, but is most likely the result of over manning at the least productive

PRCs and an uneven system wide distribution. Figure 7 contains a graphical

representation of the results.

Average Hourly Transactions per Employee
1998 - 1999

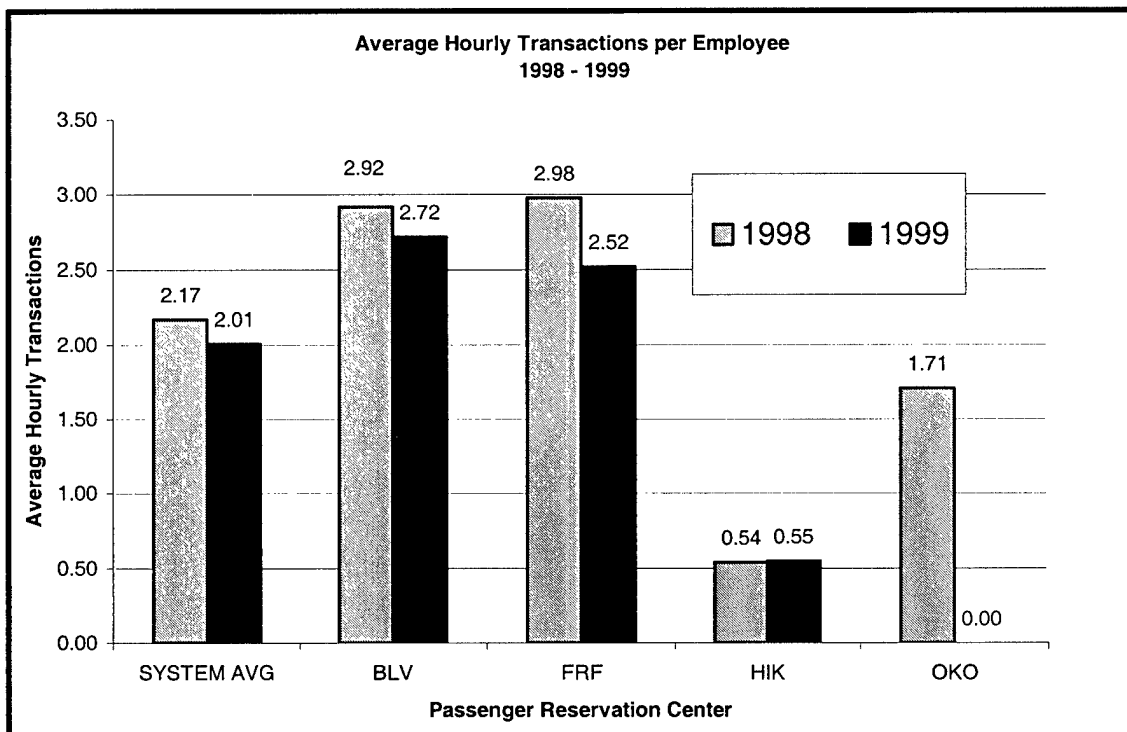| Passenger Reservation Center	1998	1999
SYSTEM AVG	2.17	2.01
BLV	2.92	2.72
FRF	2.98	2.52
HIK	0.54	0.55
OKO	1.71	0.00

Figure 7. Average Hourly Transactions per Employee (HQ AMC/DONR)

Research Objective Three - Reservation Call Center System Structure

Evaluate the reservation call center system structure preferability with respect to one centralized center vs. multiple regional centers.

The objective of this section is to determine if it would be preferable for the Air Mobility Command to consolidate the number of passenger reservation centers it operates from the current number of four into a lesser number or even just one. All of the major airlines have established reservation call center (RCC) systems consisting of multiple, regional centers along with a central center. The primary reason for this is redundancy.

All of the major airlines require a backup center in the event that one center shuts down. The airline with the smallest reservation system has only two centers with an approximate reservation workforce of 1,500 agents. It is conceivable that a single center operation could be established for this airline. However, even this airline chose to establish a backup center. All the airlines stressed the importance of backup. Any number of things can and do shut down RCCs, including, fire, fire drills, bomb threats, thunderstorms, tornados, or computer crashes. The airline with the largest system, i.e. 12 centers, stated that if even one center goes down, it wreaks havoc on the remaining centers as calls are rerouted. Clearly, regardless of the system size, redundancy is the primary consideration in structuring the reservation system.

Another major factor is the shear enormity of the reservation agent workforce. The smallest of the major airlines operates 2 centers staffed by approximately 1,500 agents, while the largest has 12 centers employing over 9,000 agents. The major airline average is 7 RCCs and approximately 4,500 reservation agents. To put this in perspective, the largest of the reservation operations would be the equivalent of the

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populations of two good sized Air Force bases. It would take a building nearly half the size of the Pentagon to accommodate a work force of that magnitude.

To operate the systems efficiently, all of the airlines have installed very sophisticated telephone switching networks. These systems automatically reroute calls not only in the event of a system going off line, but they perform a load balancing function as well. In this manner, they are able to minimize the time customers spend on hold waiting for an agent. One airline indicated that their switching network determines the lowest telephone toll charge and routes the call to the nearest center, thereby minimizing phone costs.

Another issue concerns time zones. Not all the centers are operated on a 24-hour schedule. To ensure 24-hour availability to the customer, the centers are located in differing time zones across both the United States and internationally as well.

The final issue to be discussed related to the reservation system involves the Internet option for making reservations. It is clear that all of the airlines are quickly developing and encouraging the use of the Internet option. Most of the airlines could not or would not provide the relative costs of making a reservation via the Internet versus calling an agent. All said that the Internet was much more inexpensive than the cost of going through an agent. One airline did provide some approximate figures. It stated that it cost about $1 on the Internet, $10 via a travel agent, and somewhere in between to make a reservation telephonically. Even though all of the airlines are expanding the use of the Internet option, they all emphasized the importance of maintaining a human workforce. The strategy is to encourage the majority of basic reservations to be made on

the Internet while maintaining the agents to handle unique situations and handle customer questions.

Manpower Analysis

The closure of the least productive PRC, Hickam AFB, HI, would not only improve the PRC system productivity, it would also generate considerable monetary savings. The current Unit Manning Document reflects authorized manning levels of 2 military and 9 civilian positions. Closure would eliminate most of the manpower authorizations. The 2 military positions and most of the 9 civilian positions could be eliminated. The savings in terms of annual salaries assumes the reassignment of one GS-6 position to BLV and one to FRF. The military salaries (E-5 and E-6) assume 10 years in service, married, and two children. The annual salary includes base pay, basic allowance for subsistence (BAS), basic allowance for housing (BAH), and cost of living allowance (COLA). The annual civilian salary includes base pay and locality pay of an additional 25% (23). Actual realized savings will vary depending on the numbers of each grade retained to offset the increased workload at other PRCs as well as actual salaries of assigned personnel. The estimated savings are shown in Table 5 (24).

Table 5. 2001 HIK Personnel Costs (23)

2001 HIK Personnel Costs				
Assigned Grade (# of each)	Salary	Current	with HIK Closure	Annual Savings
E-6 (1)	$49,356	$49,356		
E-5 (1)	$42,516	$42,516		
GS-11 (1)	$50,295	$50,295		
GS-9 (1)	$41,568	$41,568		
GS-8 (2)	$37,634	$75,268		
GS-6 (3)	$30,579	$91,736	$61,158	
GS-5 (1)	$27,434	$27,434		
GS-4 (1)	$24,520	$24,520		
		$402,692	$61,158	$341,535

Options

There are any number of combinations for closures and realignment available for consideration. By taking some factors as hard constraints the field is narrowed considerably. The first hard constraint is that BLV should remain open. It is in the most stable atmosphere being located at HQ AMC and is centrally located between the five theatres it supports, i.e., CONUS, ACOM, CENTCOM, EUCOM, and PACOM. The second hard constraint is that there should be more than one PRC to provide redundancy. One center could easily be established to handle the workload, but it would not be prudent. The third constraint is the fact that the salaries of the Japanese local nationals that man the OKO PRC are at virtually no cost to the US Government. For this reason, the OKO PRC provides a relatively inexpensive backup operation., although it does not constitute a significant share of the overall workload. Whether or not this constraint is hard or soft is beyond the scope of this study. The fourth constraint, which should be considered as hard, is the need to have 24-hour coverage for the PRC system.

Option 1. Keeping these four constraints in mind leads to the following first option. Close HIK and divert the portion of its calls that occur during the OKO duty hours (37%), to OKO, and the remainder (63%) to BLV. Since BLV is currently staffed below its current workload, some diversion of manpower authorizations from HIK to BLV and/or FRF must be considered. By shifting one authorization each to BLV and FRF, the system manpower vs. workload is improved as shown in Figures 8 and 9.
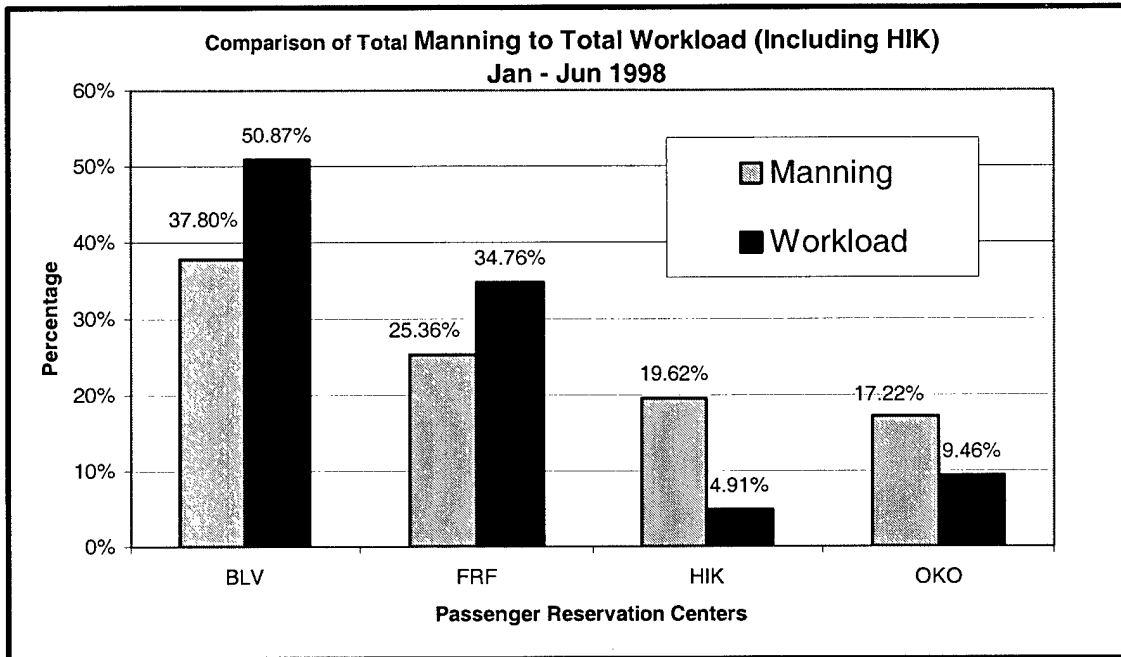
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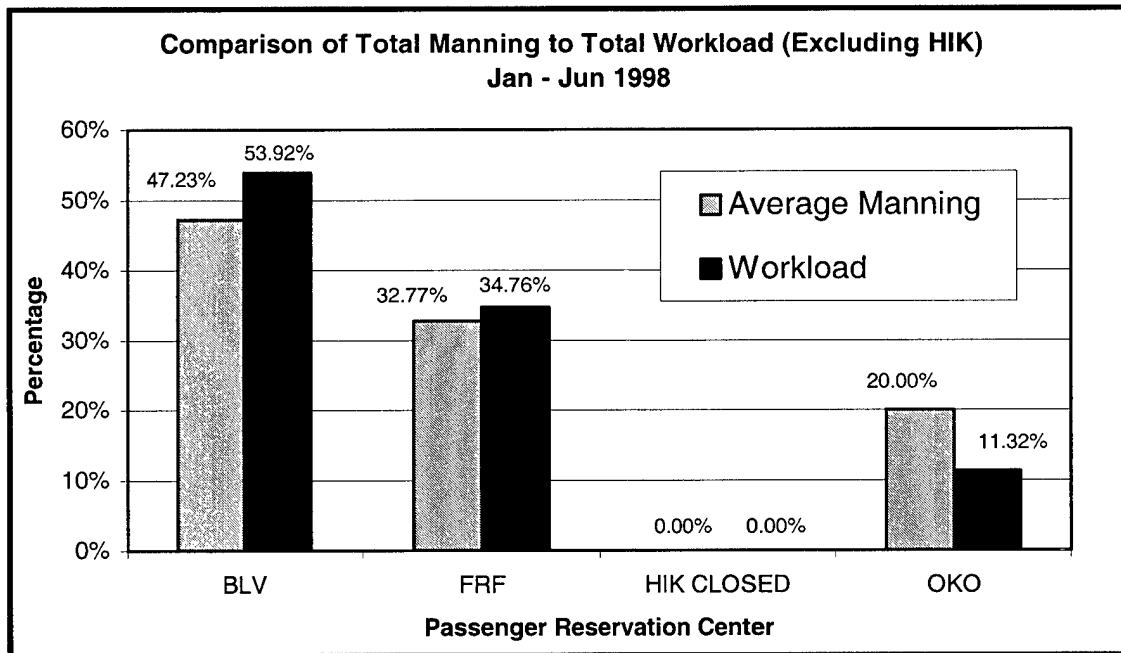Figure 8. Manning vs. Workload, Jan – Jun 1998, Including HIK (HQ AMC/DONR)

Figure 9. Manning vs. Workload, Jan – Jun 1998, Excluding HIK (HQ AMC/DONR)

This option provides the following benefits. An improvement in the relative productivity at OKO, a reduction of overall labor costs (net reduction of 9 manpower authorizations including supervisory personnel), improved manpower-to-workload parity system-wide.

Option 2. The second option involves leaving the PRC system as is until the Defense Travel System is fully implemented and has achieved a steady state operation. It is apparent that there is no turning back from the steady downslide in PRC activity resulting from the DTS implementation. Of course, doing nothing is the least painful and disruptive option in the short run. However, it incurs the cost, for several more years, of operating an inefficient system that will be getting progressively more inefficient as the DTS and GATES come to fruition.

Summary

This chapter provided descriptive statistics regarding the relative efficiency in terms of a comparison of total system manning to total system workload of the 4 Passenger Reservation Centers operated by the Air Mobility Command. Analysis of the transaction volume vis-à-vis the assigned manning indicates their is a great disparity between the 4 PRCs. Also, when the total transactions from the sample periods of January to June of 1998 and 1999 are aggregated into a 24-hour period, it is clear that the majority of the transactions are made during the normal duty hours of the central PRC located at Scott AFB, Illinois, which operates on Central Time. Furthermore, 93% of the total transactions were accomplished between the hours of midnight and 1700, Central Standard Time (CST). A mere 6% of the total was accomplished between 1800 and 2400 CST.

A clear understanding was gained of the need to have multiple reservation call centers versus just a single center. The need for redundancy, the large work forces, and the ability to cover 24-hour operations without having all the centers open 24-hours necessitated having multiple centers. Although the Internet is making inroads into the reservation management, all of the airlines expressed a need to maintain a human factor in the process to handle unique situations.

The manpower analysis showed the estimated monetary savings that could be generated by closing the Hickam AFB PRC. Although there could be any number of options from which to choose, two options for action were presented based on the overall analysis. The first option discussed closing the Hickam AFB PRC and the second discussed maintaining the status quo. Chapter 5 will provide conclusions and recommendations for action and further research.

V. Conclusion

This chapter presents conclusions and recommendations for action and further research.

Conclusions

The answer to the research question of "Is there is a more efficient structure for the AMC Passenger Reservation Center system to perform passenger reservation management" is yes; there is a more efficient structure. This answer is based on the following conclusions.

The PRC system is grossly out of balance with respect to its manning and workload. There is a very uneven distribution of both manning and workload between the largest/busiest PRC and the smallest/slowest. Call activity is down system wide in the AMC PRC system. Virtually all of the call activity at the PRCs supports making reservations on the Patriot Express contract airlift system. Ridership on the Patriot Express has not only been very consistent, it has actually risen somewhat during approximately the same timeframe that the PRC call activity has dropped. Precipitating the drop in PRC activity was the activation, in November 1997, of the computerized passenger reservation system GATES. This latest system enabled PRC customers to bypass the process of telephoning the PRC agents. This allowed them to make their own reservations via the Internet. The resultant drop in PRC activity in the first six months of 1998 to the same period in 1999 strongly appears to be the result of the GATES implementation. This situation will become more aggravated as GATES is installed at

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more and more bases, culminating with more than 3 million DoD members ultimately

having the ability to make their own air transportation arrangements.

The PRC system 24-hour transaction workload distribution is non-uniform

throughout the 24-hour period. When the system workload is viewed on an hourly basis

across a 24-hour spectrum, it is clear that the distribution is skewed with the hours of

1800 to midnight being the least productive. The PRC responsible for this segment of the

workday is primarily OKO with HIK accounting for a relatively insignificant portion. In

fact, the timeframe when HIK, the PRC with the least total transactions, produced the

majority of its activity coincides very neatly with the normal duty hours of BLV and

FRF. A parceling out of HIK's workload to BLV and FRF would positively impact the

overall system productivity level. It would redistribute a portion of the HIK workload to

the over manned OKO. Since the remaining two PRCs, BLV and FRF, are currently

undermanned, a reassignment of a commensurate number of HIK's manpower

authorizations to these two stations may be appropriate.

Recommendations

Based on the information and analysis of this study, it is recommended that the

AMC Passenger Reservation Center system be restructured to provide a more efficient

operation. Specifically, the recommended option is the closure of the Hickam AFB PRC.

Management Implications

The implications to management of adopting one course of action versus another

involve a trade off between the associated costs and benefits. Should management

implement Option 1, it may reap several benefits. The first would result in an increase in

productivity. The elimination of one entire, relatively unproductive PRC, HIK, would immediately improve workload parity and individual output. A second benefit would result from a net reduction in manpower authorizations. Assuming 7 authorizations are cut an approximate annual savings of $340,000 could be realized. Retaining the remaining three PRCs, BLV as the central PRC, along with the two non-central PRCs, FRF and OKO, preserves the requirement of maintaining system redundancy, albeit at a lower overall cost.

However, there are some costs attached to Option 1. It will be several years before the DTS and GATES are fully implemented. Changing the system at this point may only be an interim fix necessitating a further adjustment at a later date. Without knowing the full extent of workload reductions resulting from DTS/GATES, any adjustments to manpower may be perceived as "jerking the people around" precipitating a decrease in morale.

Further Research

There are three areas in which further research is recommended. The first area of further research that should be conducted before any changes to the system are initiated is a thorough manpower study to establish objective productivity standards to facilitate creating a system to meet the DoD needs of a fully implemented Defense Travel System.

The second is a comprehensive cost analysis of any changes to the existing PRC system. There are many factors well beyond the scope of this study that should be taken into consideration. The potential costs and benefits associated with the termination of

employees, including severance packages, and the closing, relocating or expanding of facilities and telecommunications infrastructure need to be examined.

The final potential area of further research involves the political implications of restructuring. The impact on host nation relations in Germany and Japan as well as the termination of employment in local congressional districts in the State of Hawaii cannot be ignored.

Appendix A: List of Acronyms and Abbreviations

ACOM	Atlantic Command
AMC	Air Mobility Command
AO	Approval Official
BAH	Basic Allowance for Housing
BAS	Basic Allowance for Subsistence
CENTCOM	Central Command
COLA	Cost of Living Allowance
CONUS	Continental United States
COTS	Commercial Off-the-Shelf
CTO	Commercial Transportation Office
DTS	Defense Transportation System Defense Travel System
DoD	Department of Defense
DoT	Department of Transportation
EUCOM	European Command
GATES	Global Air Transportation Execution System
MAC	Military Airlift Command
MTO	Military Transportation Office
PACOM	Pacific Command
PRC	Passenger Reservation Center
PRAMS	Passenger Reservation and Manifesting System

PRUS   Passenger Reservation Users Sites

UMD   Unit Manning Document

USTRANSCOM   U.S. Transportation Command

Appendix B: Civilian Airline Management Questionnaire

Firm: _____

Date: _____

Section 1 – Reservation Call Center Information

Question 1:   How many reservation call centers (RCC) does your firm operate?

_____

_____

_____

Question 2:   What determines how many RCCs your firm operates?

_____

_____

_____

Question 3:   If you operate more than one RCC, is one of them considered "central?"
(Skip question if your firm has only one RCC)

_____

_____

_____

Question 4:   In the event of system down time at one RCC, do your regional RCCs
serve as back up for the rest of the system?

_____

_____

_____

Question 5:   What are the hours of operation of your RCCs?

_____

_____

_____

Question 6:   How do/did you decide where to locate your RCC(s)?

_____

_____

_____

For example

Local cost of living?

Small towns vs. cities?

Labor (availability, unionization, etc)?

Non-regional accents?

Proximity to your corporate headquarters?

US or overseas?

Question 6:   What computer reservation system does your firm use to manage the reservations?

_____

_____

_____

Question 7:   Does your firm track the origin of your calls? (For example: US region, US national, or overseas)

_____

_____

_____

Section 2 – Internet Customer Interface Option

Question 1: Does your firm operate an Internet reservation / customer service option?

_____
_____
_____

Question 2: What percentage of your firm's call / reservation activity is handled by agents vs. the Internet?

_____
_____
_____

Question 3: Does your firm's strategic plan call for a growth in activity via the Internet?

_____
_____
_____

Question 4: Does your firm envision a day when 100% of call / reservation activity wil be via the Internet?

_____
_____
_____

Question 6: To what extent does your firm maintain a manual back up, i.e., reservation sales agents, in the event of Internet down time? (For example: staffed to handle peak or average workload, etc.)

_____
_____
_____

Question 7: To what extent does your firm staff the reservation sales agents to accommodate customers without access to the Internet or for customers with unique situations?

_____
_____
_____

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Vita

Captain Robert E. Tuttle was born in Royal Oak, Michigan. He graduated from Forest Park High School in Forest Park, Ohio, in May 1976. He entered undergraduate studies at the University of Cincinnati in Cincinnati, Ohio, in 1977 where he pursued a Bachelor of Science degree in Business Administration for two years. He enlisted in the Air Force as a Personnel Specialist in 1980. He completed his Bachelors Degree through the University of Pittsburgh after having served at a variety of assignments to include Mountain Home AFB, Idaho; Greater Pittsburgh IAP, Pennsylvania; Myrtle Beach AFB, South Carolina; and Beaver Falls, Pennsylvania. He graduated with a Bachelor of Arts in Political Science from the University of Pittsburgh in 1989. He was commissioned through the Officer Training School in 1990.

His first assignment subsequent to commissioning was at Grissom AFB as a Vehicle Operations Officer and Chief, Combat Readiness from January 1991 through November 1993. In November 1993, he was assigned to the 627th Air Mobility Support Squadron, RAF Milden-hall, United Kingdom, where he served as an Air Terminal Operations Officer and Chief, Cargo Services. He was then assigned to McGuire AFB, New Jersey, in the 621st Aerial Port Squadron and the 314th Recruiting Squadron. In August 1999, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to the HQ Air Mobility Command, Scott AFB, Illinois.

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14. ABSTRACT
The Department of Defense (DoD) has undergone a massive downsizing in an effort to comply with President Clinton's directive to "reinvent" government making it more efficient. Therefore, the DoD revamped its $3.5 billion annual official business travel program. The core of this project is the Defense Travel System (DTS), an Internet based solution providing personally arranged travel, largely circumventing the base transportation offices.

This thesis looks at DTS's Air Mobility Command passenger reservation management. This program is comprised of four geographically separated Passenger Reservation Centers located in Scott AFB IL, Japan, Germany and Hawaii. The objective of this study was to analyze and measure PRC operating metrics and benchmark the major civilian air carriers to determine if a more efficient structure exists for the PRC.

The conclusions of the study indicate that there is a more efficient structure. The disparity in the manpower to workload within the four PRCs and the absence of any manpower standard by which to measure employee productivity makes it is impossible to accurately improve worker productivity. As benchmarked against industry, the PRC system contains some elements of an efficient system, although some changes are warranted. This study recommends closing the PRC in Hawaii.

15. SUBJECT TERMS
Passenger Reservation, Airlift, Civilian Air Carriers, Defense Travel System, Defense Transportation System, Passenger Reservation and Management System (PRAMS). Air Mobility Command, Global Air Transportation Execution System (GATES)

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